REMARKS

With entry of the instant amendment, claims 8, 9, 10 - 14, 59 - 65 are pending in this application. Claims 10 - 14 have been amended, and claims 3, 6 -7, 15 - 17, 57 and 58 have been canceled. Claims 64 and 65 are newly added. New matter has not been introduced by the new or amended claims. Applicants reserve the right to file further continuation and/or divisional applications on any subject matter disclosed in the application but not presently claimed. Applicants acknowledge the Examiner's statement that the phenol oxidizing enzyme of Stachybotrys parvispora claimed in the present application is free of the prior art, and further that the phenol oxidizing enzyme of Stachybotrys chartarum is free of the prior art, but the subject of the provisional double patenting rejection.

Claims 10 and 11 have been amended to clarify the specified apparent molecular weight as determined by SDS PAGE for the claimed enzymes increases after boiling. Claims 12 - 14 have been rewritten to depend from claim 10 and further to delete the erroneous typographical error "of".

New claims 64 and 65 are dependent on claims 10 and 11, respectively and recite various types of colored compounds. Support is found at pages 16 - 17 of the specification.

Objections

Applicants acknowledge Figure 3 contains errors in the description of the molecular weight markers. It is clear that 64 should be 44 and 80 should be 30. Once there is agreed upon allowed subject matter Applicants will make the necessary correction upon submission of formal drawings.

The specification has been amended to include the necessary reference to the prior applications to which priority is claimed under 35 U.S.C.§120.

The Examiner has objected to claims 12 and 13 as containing the word "of" after the word pH optimum in line 1. Applicants have corrected this typographical error not only in claims 12 and 13 but also in claim 14.

Rejection under 35 U.S.C. §112, second paragraph.

The Examiner has rejected claims 3 and 6 - 7 stating the phrase, "wherein said purified enzyme exhibits an increase in apparent molecular weight after boiling" is indefinite. Claims 3 and 6 - 7 have been canceled

The Examiner has also rejected claims 3, 6 -7 and 10 - 14 stating that the phrase "the color associated with a dye or colored compound" is indefinite. The Examiner alleges that neither the claims nor the specification provide a definite meaning of the term "colored compounds". As stated above claims 3 and 6 - 7 have been canceled.

Applicants have maintained the phrase in pending claims 10 - 14 and strongly disagree with the Examiner's assertion that neither the claims nor specification provide a definite meaning of the term "colored compound". The Examiner acknowledges i) the description of the term colored compound in the specification at page 8 (which also references the Dictionary of Fiber and Textile Technology); ii) the reference to the Colour Index 3rd ed. in the specification, and iii) the reference to examples of dyes and groups of chemical compounds used in coloring fibers in the specification. However, the Examiner contends one skilled in the art still would not know which chemical compounds to chose.

Applicants contend one skilled in the art would be free to chose any number of colored compounds because the term is clearly defined. Applicants are not required to list every dye or strain that would fall within the definition of colored compounds. Applicants give a list of substances that result in the visual appearance of a stain and these are polyphenols, carotenoids, anthocyanins, tannins, and Maillard reaction products. At page 16 various examples of these stains are provided. As stated in the specification, the phrase " modify the color associated with a dye or colored compound" or "modification of the colored compounds" means that the dye or compound is changed through oxidation such that either the color appears modified. i.e., the color visually appears tó be decreased, lessened, decolored, bleached or removed, or the color is not affected but the compound is modified such that dye redeposition is inhibited."

Applicants have taught that the phenol oxidizing enzymes of the invention are capable of oxidizing a wide variety of dyes and colored compounds having different chemical structure. Example 9 is specifically directed to the bleaching of various dyes with the S. parvispora enzyme. The dyes used include various Direct blue dyes, Acid blue dye, various Direct red dyes, various Reactive blue dyes, Reactive black dye and Malvin. As stated in the example, the results of the assay demonstrate that the S. parvispora

enzyme is able to oxidize and bleach a variety of dyes exhibiting different chemical structures using oxygen as the electron acceptor. Moreover, Applicants submit the claims should not be limited to the specific examples provided.

Rejections under 35 U.S.C. §112, first paragraph

The Examiner has rejected claims 3, 6 - 9 for use of the term phenol oxidizing and states the term phenol oxidizing defines a generic function including the following enzymatic activities oxidases [e.g. laccases (EC 1.10.3.2), catechol oxidases (EC 1.10.3.1) and bilirublin oxidases (EC 1.13.35)] and peroxidases (EC 1.11.1.7). The Examiner suggests reciting in the claims the specific phenol oxidizing activity of the enzyme. As stated in the specification, phenol oxidizing enzymes are enzymes that function by catalyzing redox reactions i.e., the transfer of electrons from an electron donor (usually a phenolic compound) to molecular oxygen or hydrogen peroxide (which acts as an electron acceptor) which is reduced to water. Reference is made to pages 9 and 10. Further as stated as page 15, the phenol oxidizing enzymes of the present invention are capable of using a wide variety of different phenolic compounds as electron donors, while being very specific for molecular oxygen or hydrogen peroxide as the electron acceptor. It is asserted that Applicants have sufficiently described the claimed invention in such clear and concise terms that one skilled in the art would recognize Applicants were in possession of the claimed invention.

The Examiner has also rejected claims 3, 6 -7 and 10 - 14 because they recite a large genus of colored compounds and because the specification allegedly fails to describe structural characteristics of colored compounds that are oxidized by the claimed enzymes. Further it is alleged there is no particular relationship disclosed between the ability of the claimed enzyme to oxidize a colored compound and the structure of the colored compound. Applicants have discussed this issue above and herein repeat that the phenol oxidizing enzymes of the invention catalyze redox reactions and are capable of using a wide variety of phenolic compounds as electron donors.

Applicants do not agree with the basis of rejection from claims 15, 17 and 57, however, the rejection is rendered moot because these claims have been canceled, without prejudice.

Deposit Requirement under 37 CFR 1.801 - 1.809

As stated at page 20 of the specification under Example 1, "The new strain of S. parvispora so identified was deposited under the provisions of the Treaty of Budapest in the Belgian Coordinated Collections of Microorganisms, Mycothäque de l'Universitä Catholique de Louvain (MUCL), Place croix du Sud 3, Louvain-La-Neuve, Beligum B-1348 on 5 December 1995 and given accession number MUCL 38996.

Additionally as stated at page 21 under Example 2 "The new strain of S. chartarum so identified was deposited under the provisions of the Treaty of Budapest in the Belgian Coordinated Collections of Microorganisms, Mycothäque de l'Universitä Catholique de Louvain (MUCL), Place croix du Sud 3, Louvain-La-Neuve, Beligum B-1348 on 5 December 1995 and given accession number MUCL 38898."

These deposited strains will be irrevocably and without restriction released to the public upon the issuance of a patent in this application.

Provisional Double Patenting Rejections.

Applicants emphasize that claims 15 - 17, 57 and 58 have been canceled without prejudice, and therefore the provisional double patenting rejection should be moot.

Based on the amendment and remarks provided herein Applicants respectfully request the withdrawal of all rejections. Allowance of claims 8 - 14 and 59 - 65 is kindly solicited.

Respectfully submitted,

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MARKED-UP VERSION OF THE AMENDED CLAIMS

10.(Twice amended) A purified phenol oxidizing enzyme having an apparent **[non-denatured]** molecular weight of about 38 kD as determined by SDS-PAGE **and exhibiting an increase in apparent molecular weight after boiling**, wherein said purified enzyme is obtained from *Stachybotrys parvispora* and is capable of modifying the color associated with a dye or colored compound.

11.(Twice amended) A purified phenol oxidizing enzyme having an apparent **[non-denatured]** molecular weight of about 30.9 kD as determined by SDS-PAGE **and exhibiting an increase in apparent molecular weight after boiling**, wherein said purified enzyme is obtained from *Stachybotrys chartarum* and is capable of modifying the color associated with a dye or colored compound.

12.(Twice amended) **[A]** **The** purified phenol oxidizing enzyme **of claim 10** having a pH optimum **[of]** from 5.0 to 7.0, inclusive as determined by incubation for 2 minutes at 20 degrees C with **[ABTS]** **2,2'-azino-bis(3-ethylbenzothiazoline-6-sulphonate (ABTS)** as substrate**[, wherein said purified enzyme is obtained from *Stachybotrys parvispora* and is capable of modifying the color associated with a dye or colored compound]**.

13. (Twice amended) **[A]** **The** purified phenol oxidizing enzyme **of claim 10** having a pH optimum **[of]** from 6.0 to 7.5, inclusive, as determined by incubation for 2 minutes at 20 degrees C with syringaldizin as substrate**[, wherein said purified enzyme is obtained from *Stachybotrys parvispora* and is capable of modifying the color associated with a dye or colored compound]**.

14.(Twice amended) **[A]** **The** purified phenol oxidizing enzyme **of claim 10** having a pH optimum **[of]** from 7.0 to 9.0, inclusive, as determined by incubation for 2 minutes at 20 degrees C with 2,6-dimethoxyphenol as substrate**[, wherein said phenol oxidizing enzyme is obtained from *Stachybotrys parvispora* and is capable of modifying the color associated with a dye or colored compound]**.

INDEX OF CLAIMS

1. - 7 Canceled

8.(Once amended) A purified phenol oxidizing enzyme obtained from *Stachybotrys*, wherein said phenol oxidizing enzyme comprises at least one antigenic determinant in common with a phenol oxidizing enzyme naturally produced from *Stachybotrys parvispora* MUCL accession number 38996 as measured by an immunoprecipitation line by Ouchterlony technique.

9.(Once amended) A purified phenol oxidizing enzyme obtained from *Stachybotrys*, wherein said phenol oxidizing enzyme comprises at least one antigenic determinant in common with a phenol oxidizing enzyme naturally produced from *Stachybotrys chartarum* MUCL accession number 38898 as measured by an immunoprecipitation line by Ouchterlony technique.

10.(Twice amended) A purified phenol oxidizing enzyme having an apparent molecular weight of about 38 kD as determined by SDS-PAGE and exhibiting an increase in apparent molecular weight after boiling, wherein said purified enzyme is obtained from *Stachybotrys parvispora* and is capable of modifying the color associated with a dye or colored compound.

11.(Twice amended) A purified phenol oxidizing enzyme having an apparent molecular weight of about 30.9 kD as determined by SDS-PAGE and exhibiting an increase in apparent molecular weight after boiling, wherein said purified enzyme is obtained from *Stachybotrys chartarum* and is capable of modifying the color associated with a dye or colored compound.

12.(Twice amended) The purified phenol oxidizing enzyme of claim 10 having a pH optimum of from 5.0 to 7.0, inclusive as determined by incubation for 2 minutes at 20 degrees C with 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulphonate (ABTS) as substrate.

13. (Twice amended) The purified phenol oxidizing enzyme of claim 10 having a pH

optimum of from 6.0 to 7.5, inclusive, as determined by incubation for 2 minutes at 20 degrees C with syringaldizin as substrate.

14.(Twice amended) The purified phenol oxidizing enzyme of claim 10 having a pH optimum of from 7.0 to 9.0, inclusive, as determined by incubation for 2 minutes at 20 degrees C with 2,6-dimethoxyphenol as substrate.

15. - 58 . Canceled

59.(Reiterated) The purified phenol oxidizing enzyme of Claim 9, wherein the phenol oxidizing enzyme naturally produced from *Stachybotrys chartarum* MUCL accession number 38898 has the amino acid sequence shown in SEQ ID NO: 2.

60.(Reiterated) The purified phenol oxidizing enzyme of Claim 10, wherein the *Stachybotrys parvispora* has MUCL accession number 38996.

61.(Reiterated) The purified phenol oxidizing enzyme of Claim 11, wherein the *Stachybotrys chartarum* has MUCL accession number 38898.

62.(Reiterated) The purified phenol oxidizing enzyme of Claim 13, wherein the *Stachybotrys parvispora* has MUCL accession number 38996.

63.(Reiterated) The purified phenol oxidizing enzyme of Claim 14, wherein the *Stachybotrys parvispora* has MUCL accession number 38996.

64.(New) The enzyme of claim 10, wherein said colored compound is selected from the group consisting of porphyrin compounds, polyphenol compounds, carotenoid compounds, anthocyanin compounds and maillard reaction compounds.

65.(New) The enzyme of claim 11, wherein said colored compound is selected from the group consisting of porphyrin compounds, polyphenol compounds, carotenoid compounds, anthocyanin compounds and maillard reaction compounds.